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(54) Title of the Invention

Packing box

(57) Abstract

Objective:

To provide a packing box which enables the stable removal of metal containers and bottles from each stage.

Construction:

In addition to respectively forming cut-off guide components 34 and 35 in the origin of the flap 24 and the lid flaps 27 and 30 which close the opening of the surface side of the packing box, in lid flaps 27 and 30, a fold 36 is formed so as to correspond to the height of each of the housed metal cans and bottles stage, so as to chronologically open the front of each stage.

Scope of Utility Model Claims

Claim 1

A packing box wherein, in a packing box in which houses metal container and bottles in multiple stages, the width of the bottom flap and the ceiling flap are roughly equal to the length of the cans and the bottles, and both ends of the cans and bottles are stored so as to be interposed by the side flaps on both sides, and the openings of the front side and the rear side are respectively closed by a set of vertical flaps and a lateral set of lid flaps; and in addition to forming cut off guides in the upper flap on the front side and in the origin of the set of lid flaps, multiple fold lines are formed corresponding to the height of multiply staged cans and bottles on the front side set of lid flaps.

Brief description of drawings

Fig. 1 A plane surface diagram of the original corrugated paper which assembles an embodiment of a packing box.

Fig. 2 An oblique view of the state in which the stored metal cans are assembled in a packing box.

Fig. 3 An oblique view of the state in which the side surface opening is sealed shut.

Fig. 4 An oblique view of state in which the packing box is stood upright.

Fig. 5 An oblique view of a packing box which is partially open.

Fig. 6 An oblique view of the state in which the side surface opening is opened to the 2<sup>nd</sup> stage.

Fig. 7 An oblique view of the state in which the side surface opening is opened to the 3<sup>rd</sup> stage.

Fig. 8 An oblique view of a removal tool.

Fig. 9 An oblique view which shows the operation by which a can is removed by the tool.

Fig. 10 A plane surface view of the development of corrugated paper showing the assembly of a sample deformation.

Fig. 11 An oblique view of a packing box filled with metal cans in which the front side opening is closed shut.

Fig. 12 An oblique view which shows the opening operation of packing box.

#### Explanation of labels

- 10 corrugated paper
- 11 bottom flap
- 12 side flap
- 13 top flap
- 14 side flap
- 15, 16 fold line
- 17 connection piece
- 20 fold line
- 21, 22 bottom flap
- 23 fold line
- 24, 25 top flap
- 26 fold line
- 27,28 lid flaps
- 29. fold line
- 30, 31. lid flaps
- 34,35. cut out guides
- 36. fold line
- 40. metal cans
- 45. removal tool
- 46. inclined surface
- 47. stopper
- 48. acceptor (receiver)
- 52. cut out guides

## Detailed Explanation of the Invention

[0001]

### Industrial Applications

The present invention relates to a packing box, and in particular to the storage in each row of multiple cans and bottles in multiple stages.

[0002]

### Prior Art Technology

In order to supply cans or bottles filled with soft drinks or alcohol and for distribution by a vending machine, extensive use has been made heretofore of packing boxes formed by assembling corrugated boxes. In other words, in addition to filling metal cans or bottles filled with soft drinks or alcohol, a specified number of drinks have been stored in packing boxes formed from corrugated cases, and supplied for distribution, or other storage.

[0003]

### Problems Overcome by the Invention

In the conventional supply format of metal cans, metal cans supplied in a state in which they are stored in packing boxes formed from corrugated cardboard cases are opened by opening the base flaps of the corrugated cardboard cases. The metal containers are then manually removed and stored in the stock of an automatic vending machine.

[0004]

With such a conventional supply format, particularly at the time of supplying the metal containers to an automatic vending machine, it is necessary for the adhering part of the packing box flap formed from the corrugated cardboard case to be peeled off, so that the metal cans can be manually removed, and supplied to the automatic vending machine. In this regard there have been problems in relation to the manual removal of the cans.

[0005]

The present invention give due consideration to such problems, and has as its objective the providing of a packing box which realizes a practical operation for loading the metal cans or bottles supplied in packing boxes formed from corrugated cardboard into an automatic vending machine.

[0006]

#### Problem Resolution Means

The present invention relates to a packing box wherein, in a packing box in which each row stores a multiple number of cans or bottles, the width of the bottom flap or ceiling flap is roughly equal to the length of the can or bottle. Storage is accomplished such that both ends of the cans or bottles are interposed by the side flaps on both sides, and the openings on the side surfaces and rear surface side is closed shut by a respective vertical set of flaps and a lateral set of flaps. At the same time, multiple fold lines are formed corresponding to the height of the cans or bottles in a set of lid flaps on the front surface side.

[0007]

#### Operation

The opening on the front surface side is opened by cutting off the cut guides attached to the source of the upper flaps of the front surface side, and cutting off the source of the lateral lid flaps. Furthermore, since there are multiple fold lines formed corresponding to the height of multiple cans or bottles in the set of lid flaps on the front surface side, by means of these fold lines, the front surface side can be opened for each can or bottle height.

[0008]

#### Embodiments

Figure 1 shows the developed state of the corrugated cardboard 10 for assembling the packing box relating to an embodiment of the present invention. The corrugated

cardboard 10 is provided with a bottom flap 11, a side flap 12, a ceiling flap 13 and a side flap 14. These flaps 11-14 are mutually foldable and coupled by means of the fold lines 15. Furthermore, in the upper end side of the bottom flap 11 the connection piece 17 is folded and coupled through the fold line 16.

[0009]

On both sides of the bottom flaps 11, bottom flaps 21 and 22 are respectfully folded and coupled through the fold line 20. In addition, on both sides of the ceiling flap 13, upper flaps 24 and 25 are folded and coupled through fold line 23.

[0010]

On both sides of side flap 12, lid flaps 27 and 28 are respectively folded and coupled through fold line 26. On both sides of side flap 14, lid flaps 30 and 31 are respectively folded and coupled through fold line 29.

[0011]

At the source of the upper flap 24 coupled through the fold line 23 on the left end of the ceiling flap 13, a set of U - shaped cut off guides 34 are attached, being formed by cut-ins. In addition, cut-out guides 35 formed by respectively oblique cut-ins are intermittently formed at the source of the lid flaps 27 and 30 of the front end side of side flaps 12 and 14. Furthermore, multiple fold lines are formed corresponding to the height of the cans in the lid flaps 27 and 30.

[0012]

An explanation is provided next of an operation in which a packing box is formed with corrugated cardboard with construction such as that described above. In addition to mutually folding the 4 flap type bodies comprising 11-14 at the location of the fold line 15, a connection piece 17 is connected to the bottom end side of the side flap 14 on the reverse side by means of an adhesive or glue, by which the corrugated cardboard 10 is assembled into a 4 angle tube.

Also, the vertical flaps 22 and 25 are respectively folded toward the inside along fold lines 20 and 23. Next, lateral lid flaps 28 and 31 on the rear surface side are respectively folded along fold lines 26 and 29, and by respectively gluing the flaps 28 and 31 to vertical flaps 22 and 25, the rear side opening can be closed shut.

[0013]

In this manner, a rectangular packing box is assembled such as that shown in Figure 2. The packing box is used to provide soft drinks and alcoholic beverages filled into metal cans 40 for distribution. The respective bottom flap 11 and the ceiling flap 13 have roughly the same measurements as the length of the metal can 40, by which means the side flaps 12 and 14 are interposed on both sides between the stored metal cans 40. In other words, for example, in each row 5 metal cans can be stored in 4 stages, in which state the opening of the front surface side is closed by flaps 21 and 24. At the same time, by gluing on lids 27 and 30 to flaps 21 and 24, a closed packing box such as that shown in figure 3 can be distributed.

[0014]

In the case of opening the packing box and removing the metal cans 40, and stacking them into the automatic vending machine, the ceiling flap 13 can be arranged to stand upright so as to become the upper side, and by cutting it off at the cut off guide 34 of ceiling flap 13, the source of the upper flap 21 can be cut off. Also, the lateral lid flaps 27 and 30 of the front surface side are also cut off at the cut off guide 35 of its origin side. In this case, lids 27 and 30 are cut off along the cut off guides 35 to the fold line 36, corresponding to the stage position of the metal cans 40 filled inside. Also, folding the lid flaps 27 and 30 at the fold line 36, a part of the opening on the front surface side is opened. In this state, the first metal can on the upper side can be removed. At this time the packing box becomes such that one can look into the chute of the automatic vending machine, and by slightly inclining the packing box the metal cans 40 of the uppermost stage can be inserted into the automatic vending machine.

[0015]

If the cans 40 are discharged from the uppermost stage, then next, as shown in Figure 6, the source of the lid flaps 27 and 30 can be cut off by the cut off guides to the position of the fold lines 36 corresponding to the height of the 2<sup>nd</sup> stage cans 40, and the lids 27 and 30 are folded at the fold lines 36 of the 2<sup>nd</sup> stage. By this means, as shown in Figure 6, the metal cans 40 of the 2<sup>nd</sup> stage can be removed from the packing box. Also, if the metal cans 40 of the 2<sup>nd</sup> stage are removed, then the lid flaps 27 and 30 can be cut off by the cut off guide 35 to the position of the fold line 36 corresponding to the height of the next stage, and the front surface side opening can be opened. If the cans 40 of the 3<sup>rd</sup> stage are removed, then by further cutting off the lid flaps 27 and 30, the lid flaps 27 and 30 can be completely cut off to the portion of the original side of the lower side flap 21, by which means the opening of the front surface side can be completely opened.

[0016]

With the packing box relating to this embodiment, in addition to forming cut off guides 35 in the respective fold lines 26 and 29 of the source of the lid flaps 27 and 30 which close shut the opening of the front surface side, formation is accomplished of cut off guides 34 in the source of the upper side flaps 24, and in the lid flaps 27 and 30 formation is accomplished of fold lines 36 relative to the height of each stage of the metal cans 40. Furthermore, in the case of removing the metal cans 40 of each stage, it is possible to open the lid flaps 27 and 30 to the height of the corresponding stage. Stable removal can be accomplished of the metal cans 40 without removing too many of them. Also, since the cut off guides 35 are formed by oblique cut-ins along fold lines 26 and 29 formed in the source of the lid flaps 27 and 30, there is no loss of the strength caused by the cut off guides 35.

[0017]

Figure 8 shows a removal tool 45 used with this type of packing box. This removal tool 45 has a cross-sectional shape which is  $\square$  in shape, and is constructed from the bottom

flap and both side flaps. Moreover, to the end of this side of the removal tool 45 is attached the plate like body which constructs stopper 47. To stopper 47 is attached an acceptor (receiver) 48.

[0018]

In the case of removing the metal cans 40 by means of a removal tool 45, as shown in Figure 9, the lid flaps 27 and 30 of the packing box is cut off at the cut off guide 35 to the position corresponding to the fold line 36 of the first stage. Also, if the removal tool 45 is smoothly inserted into the opened member, then the metal can 40 can be guided out on the removal tool 45. By this means, it becomes possible to remove the metal cans 40 for each stage from the packing box. By repeating this operation in stage 4, the metal cans 40 can be completely removed from the packing box.

[0019]

Figures 10-12 show a packing box relating to a sample deformation, and in the deformation example, in addition to forming a cut off guide on part of the fold lines 26 and 29 of the lid flaps 27 and 30, cut off guides 52 are also respectively formed on part of the fold lines 15 of both sides of the ceiling flap 13.

[0020]

Figure 11 shows a state in which metal cans are filled into a packing box assembled from such corrugated cardboard, and in which the opening on the front surface side is closed shut. In the case of removing the metal cans from such a packing box, in addition to opening the opening of the front surface side in the manner shown in Figure 12, the lid flaps 27 and 30 are cut off at the cut off guide 35 of its source, and the ceiling flap 13 is cut off and opened by the cut off guide 52 at the fold line of both sides in accordance with the need. In other words, with the packing box, not only can the opening of the front surface side of each side be opened relative to each stage by means of each fold line 36, but the ceiling flap 13 which constructs the upper surface of each packing box can also and selectively be cut off along the cut off guide 52 in accordance with the need.

[0021]

Furthermore, according to such construction, at the time of opening the lid flaps 27 and 30 and removing cans 40 from the front surface side, and in particular with reference to ceiling flaps 13 as well, since it is possible to gradually partially open it, the removal operation is easily accomplished.

[0022]

#### Efficacy of the invention

As indicated above, the present invention relates to a packing box wherein, in addition to respectively forming cut off guides at the upper flap of the front side surface and the origins of the set of lid flaps, it forms multiple fold lines corresponding to the height of multiply staged cans or bottles in the set of lid flaps of the front surface side.

[0023]

Furthermore, in accordance with such construction, the lid plates which close shut the opening of the front surface side can be chronologically opened corresponding to the height of the stages of the cans and bottles, making it possible to stably remove the cans or bottles from within the packing box.



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8/04		G 9339-3E		
25/10		7403-3E		

審査請求 未請求 請求項の数1 FD (全5頁)

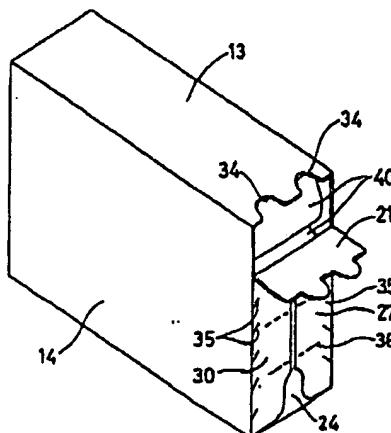
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(54) (考査の名稱) 包装箱

(57) (要約)

(目的) 各段毎に金属缶または瓶を安定向に取出すことができるようとした包装箱を提供することを目的とする。

【構成】 包装箱の前面側の開口部を閉塞する上フラップ24の根元部分と蓋板27、30の根元部分とにそれそれ切断部34、35を形成するとともに、蓋板27、30には、中に収納される金属缶40または瓶の各段の高さに応じた折曲げ線36を形成し、各段毎に前面側の開口を順次開封できるようにする。



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【実用新案登録請求の範囲】  
 【請求項 1】 各列が複数段の缶または瓶を複数段に収納する包装箱において、底板および天板の端を前記缶または瓶の長さとほぼ等しくし、

前記缶または瓶の両端を両側の側板によって接着するよう収納し、

前面側の開口と背面側の開口とをそれぞれ上下一対のフラップと左右一対の蓋板によって閉塞するようになし、

前面側の上部のフランプと一対の蓋板の根元部分にそれそれ切断導導部を形成するとともに、

前面側の一対の蓋板に複数段の缶または瓶の高さに対応する複数の折曲げ線を形成するようにした包装箱。

【図面の簡単な説明】

【図1】実施例の包装箱を組立てる段ボール原紙の展開平面図である。

【図2】組立てられた包装箱に金属缶を収納した状態の斜視図である。

【図3】前面側開口部を閉塞した状態の斜視図である。

【図4】包装箱を直立した状態の斜視図である。

【図5】一部を開封した包装箱の斜視図である。

【図6】2段目まで前面側開口を封締した状態の斜視図である。

【図7】3段目まで前面側開口を封締した状態の斜視図である。

【図8】取出し具の斜視図である。

【図9】取出し具による缶の取出し動作を示す斜視図である。

\* 【図10】矩形例の包装箱を組立てる段ボール原紙の展開平面図である。

【図11】内部に金属缶を充填して前面側開口を閉塞した包装箱の斜視図である。

【図12】包装箱の開封動作を示す斜視図である。

【符号の説明】

10 段ボール原紙

11 底板

12 側板

13 天板

14 側板

15, 18 折曲げ線

17 接合片

20 折曲げ線

21, 22 下フランプ

23 折曲げ線

24, 25 上フランプ

26 折曲げ線

27, 28 蓋板

29 折曲げ線

30, 31 蓋板

34, 35 切断導導部

36 折曲げ線

40 金属缶

45 取出し具

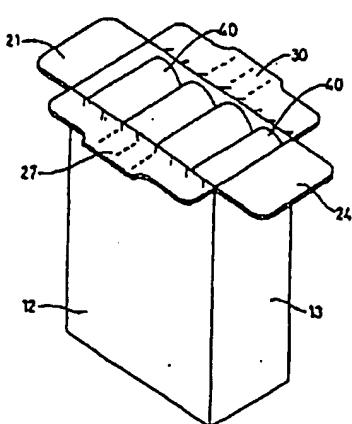
46 焼封面

47 ストッパー

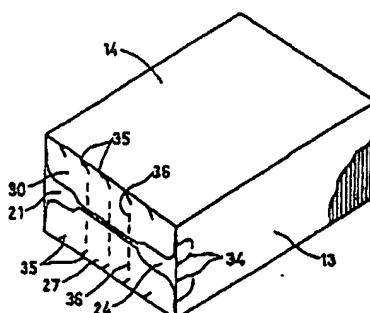
48 取手

\* 52 切断導導部

【図2】



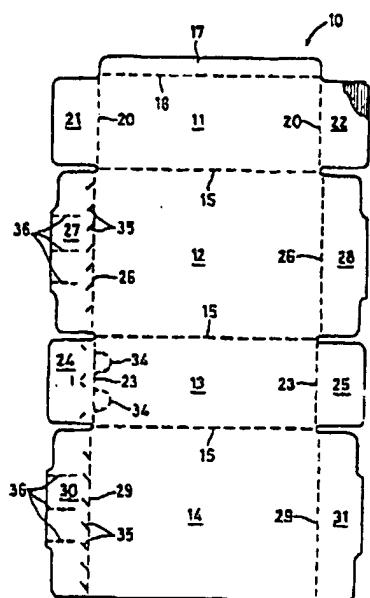
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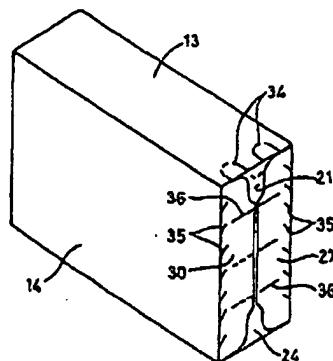
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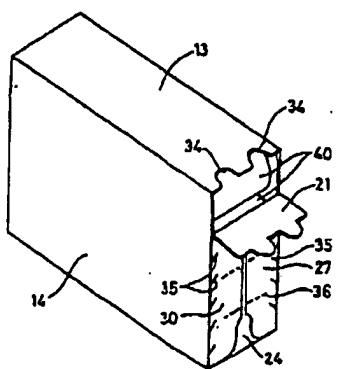
〔図1〕



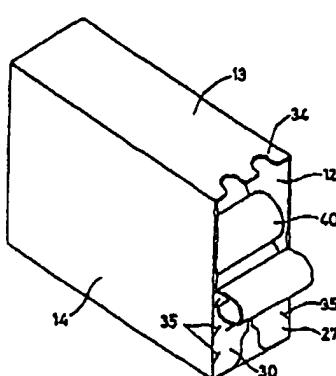
〔図4〕



〔図5〕



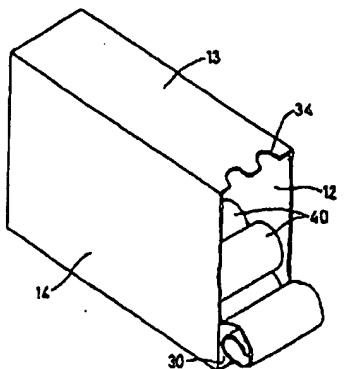
〔図6〕



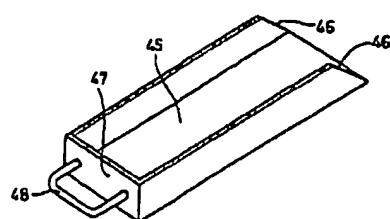
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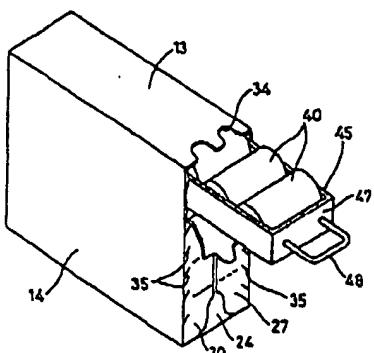
〔图7〕



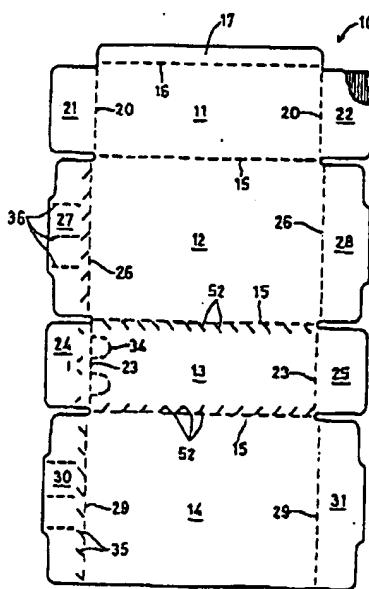
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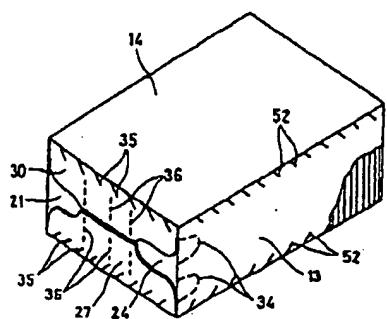
(四九)



(四一〇)



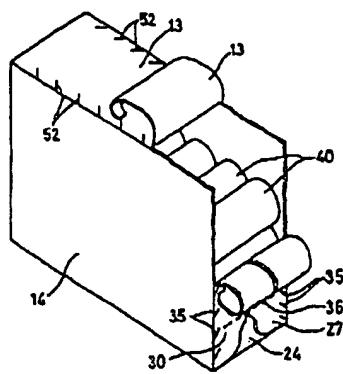
〔图11〕



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(図12)



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